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Dynamic Evaluation Approach in Adapted Physical Education: Assessing Individualized Education Procedures for Inclusion Purposes

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Abstract

The purpose of this study was to present a new Individualized Education Program (I.E.P.) developed for PE teachers using a dynamic evaluation procedure so as to assess its value in promoting educational knowledge. A modified version of the Evaluation Scale of the Educational Program's Implementation (ESEPI) (Grammatikopoulos 2004) was applied for the needs of the research on a sample of 151 physical education teachers (84 men, 67 women), all working in Greek primary and secondary schools. Statistically significant differences were observed in 'training' factor with PE teachers who had previous experience of teaching students with disabilities or working in inclusion and special classes rating higher the overall impression of the seminar. PE teachers dealing with inadequate equipment and school facilities appeared yet positive but to a lesser degree about the dynamic evaluation approach and the instrument presented, raising an issue whether possible lack of funds and school facilities discourages them to believe that inclusion can be truly accomplished without the necessary support services. Overall, results are encouraging that evaluation of the new instrument presented through an interactive and dynamic approach can be proved really valuable in helping the everyday practice of PE teachers to teach students with disabilities in inclusion classes.

Keywords: Dynamic evaluation approach, I.E.P., PE teachers, Inclusion.

Introduction

Special education in Greece during the last decade has changed. Law 2817/2000 established the term "co-education" of students with and without disabilities whereas the most recent Law 3699/08 reformed education support provided to students with disabilities and forwarded inclusion in Greece in primary and secondary school settings. Both laws that are considered as the most important in special education up to date, expanded the definition of students with "disabilities/special educational needs" to include not only those who present any "cognitive, sensory, motor or emotional disability throughout the developmental period" but also students who "need additional teaching adaptations and support due to social discrimination and/or parental negligence or due to exceptional level of ability (gifted children)" in order to satisfy their educational needs within typical class environment (Law. 3699/08, paragraph 3).

In this transitory education period toward inclusion in practice with gradual increase of inclusion classes in Greek typical schools, physical Education (PE) teachers often face the reality to teach students with disabilities whatever problems may occur during this process. In fact, the existence of recent legislation does not mean that students with and without disabilities can co-exist without difficulties (Greenwood & French 2000). Barriers to inclusion such as lack of specialized personnel, facilities and support services, as well as organization problems of state-run diagnostic evaluation centers (KEDDYs) are the main reasons why many inclusion classes are not operative yet. Lack of education, training and ability of physical educators to use developmentally appropriate practices, huge class size, the diversity of educational needs of children within each class and the concern of P.E. teachers related to the degree in which they can adapt their teaching to serve the educational needs of students and at the same time follow National Curriculum guidelines are often reported problems that describe current

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situation (Broupi, Kokaridas, Giagkazoglou, Patsiaouras, Maggouritsa & Aggelopoulou-Sakadami 2011; Vaporidi, Kokaridas & Krommydas 2005).

Thus, as happened in other countries in previous years an obvious gap is still noticed between theory and real application of inclusion in practice in Greek educational settings. Success of inclusion practices depend to a great extent on the positive attitude (Doulkeridou et al. 2011) and knowledge (Kozub & Porretta 1998) of adapted physical education that constitutes a necessary requirement for a skillful PE teacher who is in position to satisfy the educational needs of all students in class.

The specialty of adapted physical education is relatively new in Greece and most PE teachers working in typical schools assigned to teach students with disabilities in inclusion classes simply don't know where to start. The fact that inclusion classes are increasing without, at the moment, recruitment of adapted physical education personnel, leads to great difficulties in truly accomplishing inclusion through play and sports that are crucial for the psychomotor development of every child with and without disabilities.

In general, three are the basic requirements for a PE teacher so as to succeed in adapted physical education, related to knowledge regarding psychomotor development, adaptations in teaching according to disability and individual characteristics and design and implementation of the Individualized Education Program (Kokaridas 2010). Especially the Individualized Education Program (I.E.P.) a written statement – document designed to help PE teachers to meet the unique educational needs of the child with disabilities, develop goals and objectives that correspond to the needs of the student and improve level of performance and achieve goals in education and sports (Auxter & Pyfer 2001), constitutes the “cornerstone” of adapted physical education and special education in general (Sherrill 2004).

The I.E.P. in countries such as US has a form of a legal document (Individuals with Disabilities Education Act Amendments 2004) and organized both in procedure and record keeping that is signed by everyone involved (teachers, parents, local education authorities, etc) so as to specify the most optimal educational environment and provisions given to students with disabilities. In Greece, the I.E.P document involves a short evaluation and general guidelines letter three to four pages long that is sent by the state-run diagnostic evaluation centers (KEDDYs) to school authorities. This short report is also approved and signed by the legal guardians of the child and then everything depends solely on teachers' effort. Especially as regards to adapted physical education, a specific I.E.P. document did not exist until recently. The first effort was made recently by Kokaridas (2010) with an aim to create an I.E.P. that is most suitable for application in Greek PE settings and quite different compared to the I.E.Ps of other countries. Hence, this I.E.P. represents the first attempt in Greece to help PE teachers to develop goals and objectives and monitor students' progress throughout the whole education year transmitting at a same time a sense of security to PE teachers that they are truly in position to satisfy the educational needs of all students in their class. The overall purpose of this I.E.P. through its specific and simple to follow structure, is to provide a general guide to PE teachers who are not necessarily familiar with disability issues of how they can set their thoughts and actions in a logical order. Full version of the I.E.P. guide consisted of 21 pages can be seen at the English version of the first adapted physical education information base ever created in Greece (<http://www.pe.uth.gr/efa>), with an aim to improve the connection between University studies with primary and secondary school education and to provide educational support to PE teachers who care and are willing to provide support to students with disabilities within typical or special school contexts.

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However, the creation of a new assessment tool is not enough if it is not followed by its evaluation by all PE teachers who will be called to apply such instrument in the near future, especially when this evaluation follows a dynamic approach that combines all the advantages of traditional models (Dimitropoulos 1999). Dynamic evaluation of a new educational program or assessment tool is an important part of the educational process helping participants to discover weak aspects of a program and put into practice the key elements for success (Dimitropoulos 1998).

Main features of the dynamic evaluation approach are 'selectivity' and 'dynamism' (Worthen & Sanders 1987). Dynamism is based on a systemic approach that consists of three basic parts, that is, introduction and transmitting of information, the main process and the final obtained through the interaction, self-control and self-correction of the three essential components (Pekelis 1986). Regarding selectivity, the researcher who applies dynamic evaluation has two options, either to adopt a specific evaluation model and run the procedure or to choose among different models the parts that he considers that are more useful to his case (Grammatikopoulos, Koustelios, Tsigilis, & Theodorakis 2004).

The implementation of such a procedure in practice took place for the first time in Greece through the programs of 'Olympic Education' and 'Kallipateira'. The Olympic Education program incorporated the process of implementing modern educational innovations in Greek education through interdisciplinary teaching using exercise, art and theory. The evaluation of this innovative program not only in physical education but also in general education was considered of paramount importance (Grammatikopoulos, Tsigilis, Koustelios & Theodorakis 2005).

The purpose of Grammatikopoulos et al. (2004; 2005) studies, was the application of dynamic assessment to measure and evaluate the Olympic education

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program by developing a new reliable and valid measurement tool. The factor analysis verified the construct validity of the questionnaire, drew three factors related to conferences, working groups and the overall impression derived from seminars and highlighted the important role of dynamic assessment to the proper selection of educational processes. The dominant feature of this dynamic process proposed to PE teachers was the use of interdisciplinary teaching approach with all PE teachers working in groups so as to develop common activities and lesson plans while always having in mind that the student constitutes the central figure of the educational process.

A modified version of Grammatikopoulos et al. (2005) questionnaire was used for the needs of this study which also applied a similar dynamic evaluation approach. The purpose of this study was to present the new I.E.P. created to PE teachers using a dynamic evaluation procedure so as to assess its value in promoting educational knowledge as well as the degree to which this I.E.P. is considered a useful education tool that will help PE teachers in their everyday practice to teach students with disabilities in inclusion classes.

Methodology

Participants

The sample consisted of 151 participants (84 men and 67 women), all physical education teachers working in typical and special schools of primary and secondary education in four different education districts, that is, Trikala, Magnesia, Grevena and Thessaloniki. In each district, PE teachers attended the same interactive seminar entitled "Design and implementation of Individualized Educational Programming for students with disabilities". Organization of each seminar was held with the collaboration of the PE office in each educational district, PE counselors, and the teaching staff responsible

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for the adapted physical education specialty and the Department of Physical Education and Sport Science, University of Thessaly, Trikala, Greece, with determination of specific seminar dates and press release concerning the purpose of the seminar to all primary and secondary schools of each educational district.

Procedure

Seminar process initially included a 40 minute presentation of the new Individualized Education Program (I.E.P.), a detailed written report providing clear instructions for structuring and implementing an intervention program of adapted physical education. Then, PE teachers were divided in small working groups, and a written “scenario” was provided, describing a different case of a student with a disability in each group. Next, PE teachers in each group with the help of seminar assistants were asked to complete the I.E.P. sheet following a holistic approach of evaluating present level of abilities of each student and structuring an intervention PE program with specified teaching adaptations and objectives throughout the whole education year. Finally, each group presented its own I.E.P. and a representative lesson plan according to case to all other seminar groups and an open discussion was initiated with the participation of all PE teachers regarding additional proposals that could be made to further improve the intervention PE program developed by each group. At the end of the seminar, all lesson plans were gathered for uploading at the adapted physical education information base (<http://www.pe.uth.gr/efa/>).

Instrument

A modified version of ESEPI, that is, the Evaluation Scale of the Educational Program’s Implementation (Grammatikopoulos 2004) that was used to evaluate the Olympic

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Education Program (OEP) implementation in Greece, was provided to all PE teachers for completion at the end of each seminar. The initial questionnaire consisted of 30 items scored on a 5-point Likert-type scale (from "very bad" to "very good") addressing 5 factors concerning administration, educational material, procedure, student – teacher relationships and training.

Statistical Analysis

Data analysis included the use of the Statistical Package for Social Sciences (SPSS Version 15.0). Factor analysis was conducted to determine final number of factors of the modified questionnaire. Cronbach's coefficient alpha was used to examine the internal consistency of each ESEPI factor. Pearson correlation coefficients provided estimates of associations among factors. An independent t test was included to identify possible differences in scores between groups in relation to gender, placement of PE teachers (in primary or secondary education) and previous experience of physical educators of teaching students with disabilities. One-way analysis of variance was used to identify possible differences according to class type (special, typical or inclusion class) PE teachers currently work and adequacy of their school facilities. Statistical significance was set at .05. Descriptive statistics were also included.

Results

Exploratory factor analysis followed by varimax and scree plot supported the maintenance of five factors underlying the structure of the modified ESEPI questionnaire (Grammatikopoulos 2004) named 'educational material - I.E.P.', 'seminar speaker', 'group assistants', 'administration', and 'training'. Items $> .40$ were considered as loading in a particular factor as they better illustrate this factor (Bortz

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1993). The five factors with eigenvalues greater than 1.0 interpreted the 73,347% of total variance (KMO = .91, Bartlett's Test of Sphericity = 4185.58, $p < .001$). Loading factors are shown in Table 1, showing questions with loadings $> .40$.

***** Table 1 here *****

Reliability analysis using Cronbach's coefficient alpha revealed an internal consistency ranging from good ($\alpha = .745$) to high ($\alpha = .807$) for the factors of educational material and group assistants respectively. Moreover, Pearson r analysis revealed positive correlations between all factors (Table 2).

***** Table 2 here *****

Independent t -test analysis revealed statistically significant differences in the 'training' factor with PE teachers who had previous experience of teaching students with disabilities exhibiting a more positive opinion regarding overall impression of the seminar and usefulness of knowledge acquired (Table 3). Furthermore, no statistically significant differences were observed in terms of gender or placement of PE teachers in primary or secondary education.

***** Table 3 here *****

One - way ANOVA revealed statistically significant differences regarding the 'training' factor according to class type, with PE teachers working in special and

inclusion classes showing a more positive attitude toward the overall impression and usefulness of the seminar compared to those working in typical classes (Table 4).

***** Table 4 here *****

In relation to adequacy of school facilities, a statistically significant difference was noticed in the 'administration' factor with PE teachers working in school with inadequate school facilities to appear positive but to a lesser degree toward the overall seminar organization, compared to PE teachers having adequate or at least acceptable school services (Table 5).

***** Table 5 here *****

Descriptive statistics showed that the vast majority of PE teachers (93.4%) rated each part of the I.E.P. content very positively (from 'good' to 'very good'). Similar positive attitude was expressed for 'administration' (92.1%), 'speaker' (95.4%) 'group assistants' (91.9%) and 'training' (96.7%) factors, with PE teachers expressing a very positive opinion regarding the overall impression of the seminar (95.3%) and the usefulness of knowledge gained (91.3%) so as to help them in their everyday school practice. Finally, the dynamic process of working in groups was also positively evaluated by the 86.1% of all physical educators participating in this study.

Discussion

The study adopted a dynamic evaluation approach having as a purpose to evaluate whether the new Individualized Education Program (I.E.P.) is a useful

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assessment tool that helps PE teachers in their everyday practice as well as the dynamic approach itself as a process that promotes education and knowledge in adapted physical education (PE). As to the instrument used, factor analysis showed that the modified version of ESEPI (Grammatikopoulos 2004) although adapted to the needs of this research, supported the maintenance of five factors underlying the structure of the questionnaire with internal consistency ranging from good to high among factors.

In the dynamic process that followed, familiarization and training of PE teachers with the new I.E.P. was directly linked with the implementation of the dynamic approach with physical educators working in groups while immediately followed the overall evaluation of the program as an integral part of this process (Sparks & Hirsch 1997). Many studies highlighted the need of coexistence of implementation and assessment of each educational program as a control mechanism of the whole process (Worthen & Sanders 1987; Nevo 1994; Dimitropoulos 1998) so as to better judge the effectiveness of training delivered (Guskey, 2000). The dynamic process followed in this study has shown to be a promising tool for evaluating the whole interactive procedure as useful and essential, promoting education and knowledge in adapted physical education.

The overall seminar and its parts (organization of seminar, I.E.P. content, speaker & assistants, working in groups and comprehensive training) were rated very positively by the vast majority of PE teachers. Overall training provided was perceived by PE teachers as very satisfactory, application process took place without problems and the main objective of the seminar were accomplished. Especially PE teachers with previous experience in teaching students with disabilities as well as educators working in inclusion and special classes appeared to have a better overall impression of the

knowledge received, felt more satisfied with their work in groups and they believed to a greater extent regarding the usefulness of the new I.E.P. in their everyday school work.

Assessment of I.E.P. content revealed that the vast majority of PE teachers evaluated each section of the I.E.P. very positively. The new educational material seemed to be "friendly" toward the user and according to physical educators' sayings, seemed effective and useful to apply in their daily school practice while at the same time fostered their critical way of thinking. However, it's a limitation of this study that this I.E.P. is the first created in Greece and there is also no equivalent in this form so as to provide a standard point of reference and comparison. Thus, future researches are needed to evaluate usefulness of this I.E.P. using a larger sample of PE teachers in Greece and other countries as well as to examine its construct validity. Nevertheless, first results are encouraging. The I.E.P. helped PE teachers to realize that they have the skills to include and teach students with disabilities in their classes if they set their thoughts and actions in a logical order, an advantage that this I.E.P. actually seemed to provide.

It is also important that the dynamic approach followed created a more positive attitude of PE teachers not only toward the whole training and knowledge received but also toward the necessity and usefulness of adapted physical education as a specialty. Throughout the use of "friendly" educational material such as the I.E.P. of this study and the application of a dynamic evaluation process, demands of adapted physical education can be really promoted. Following a dynamic approach application, adapted physical education can really provide the "cutting edge" to general physical education and foster the belief that a PE teachers with full education potential are only those who are able to satisfy the educational needs of all students with and without disabilities in their classes. As a result, all PE teachers during a general discussion that took place

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after presentation of group work stressed the need to appoint adapted physical educators next to PE teachers in inclusion classes if anyone wants to apply inclusion in real practice.

The highly positive views expressed by the vast majority of participants resulted to the absence of any other statistically important differences except in the case of PE teachers with inadequate equipment and school facilities who also appeared positive but to a lesser degree about the overall impression toward the seminar. It seems that despite the fact that the I.E.P. was also positively evaluated by all participants possible lack of funds and school facilities discourages PE teachers and makes them believe to an extent that inclusion can not be truly accomplished without the necessary support services (La Master, Gall, Kinchin & Siedentop 1998; Vaporidi, Kokaridas & Krommidas 2005). Thus, future improvement of support services, equipment and facilities in Greek schools is an issue that has to be addressed so as bridge the gap between theory and real application of inclusion in practice (Papadopoulou, Kokaridas, Papanikolaou & Patsiaouras, 2004).

Evaluation of any new educational material created in special education is of great importance and is recognized by everyone (Nevo, 2001). Assessment tools such as the I.E.P. of this study that is easy to follow instructions and use, can be proved really valuable in helping the everyday effort of PE teachers to teach students with disabilities in inclusion classes. The only thing needed is to present such instruments through an interactive and dynamic way that encourages critical thinking. Nevertheless, the first results of this effort appear at least encouraging.

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Figure Captions

Table 1. Exploratory factor analysis with varimax rotation.

Factors	F1	F2	F3	F4	F5	M.O	T.A.
<i>F1 Educational material – I.E.P</i>							
Immature motor characteristics	.860					4,429	.6803
Motor skills - patterns	.844					4,476	.6533
Behavior	.840					4,436	.6609
Sociability - Adaptability	.832					4,449	.6413
Psychomotor domains	.831					4,369	.7198
Self-help skills	.823					4,382	.6935
Intelligence	.818					4,416	.6788
Hearing - Speech	.806					4,429	.6803
Teaching Adaptations	.792					4,456	.6522
Useful assessment questions	.777					4,402	.6567
Disability - Health issues	.749					4,375	.6825
General information	.712					4,536	.5986
Lesson Planning	.663					4,523	.6105
<i>F 2 Group assistants</i>							
Helped presentation of groups in a clear and comprehensible way.		.900				4,416	.7269
Encouraged creative thought.		.899				4,389	.7507
Transmitted their enthusiasm.		.883				4,382	.7587
Used time effectively		.864				4,476	.6934

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Were appropriately prepared.	.844	4,396	.7335		
F 3 Seminar speaker					
Was appropriately prepared	.868	4,765	.4706		
Transmitted his enthusiasm	.822	4,617	.5881		
Presented educational material in a clear and comprehensible way.	.622	4,698	.5539		
Encouraged creative thought	.599	4,604	.6020		
Used time effectively.	.466	4,651	.5566		
F 4 Administration					
Activities	.735	4,295	.7119		
Groups	.720	4,275	.7521		
Educational material	.664	4,369	.7292		
Organization	.609	4,503	.5998		
Speech	.463	4,610	.5540		
F 5 Training					
Usefulness of knowledge acquired	.866	4,4698	.6320		
Seminar impression	.696	4,5570	.5621		
Eigenvalues of factors	9.15	4.55	3.26	2.91	2.12
Explaining variation in rates %	30.52	45.69	56.57	66.27	73.34

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Table 2. Internal consistency and correlation of factors.

	Administration	IEP	Seminar Speaker	Group assistants	α
Administration					.751
IEP	.516**				.745
Seminar Speaker	.590**	.484**			.761
Group assistants	.385**	.489**	.317**		.807
Training	.497**	.463**	.558**	.368**	.761

Table 3. Previous teaching experience with students with disabilities

Factors	Teaching experience	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Training	Yes	66	4.61	.494	1.981	145	.045
	No	81	4.43	.595	2.019	144.94	

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Table 4. Class type.

	Typical class		Special class		Inclusion class		<i>F</i>	<i>p</i>	η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Training	4.28	.734	4.93	.179	4.77	.457	2.64	.026	.034

Table 5. School facilities.

	Inadequate		Adequate		Acceptable		<i>F</i>	<i>p</i>	η^2
	<i>M</i>	<i>TA</i>	<i>M</i>	<i>TA</i>	<i>M</i>	<i>TA</i>			
Administration	4.1862	.60458	4.4438	.45246	4.4963	.48475	3.476	.034	